

Factors Preventing Hiring of Highly Educated Female New Graduates in Japanese Corporations

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Abstract: The main purpose of this study is to find the attributes of corporations that prevent hiring of highly educated female new graduates, who hold bachelor's or master's degrees. Our results show that the percentages of new graduates who majored in the field of humanities and of female employees positively correlate with the percentage of female new graduates, suggesting that corporations with many female employees also have a high percentage of hiring female graduates. Furthermore, the percentage of female managers and the presence of labor unions also tend to be positively significant on hiring percentage of female new graduates. However, we identified the two important factors as a hindrance to hiring new female graduates in Japanese corporations: (1) the tenure years of female employees and (2) the percentage of employees working overseas. Although the promotion of female employees is on the rise in Japan, these findings indicate that the positions of female employees are still limited within gender-specific jobs or positions that do not require a business trip or relocation. A closer focus on these issues should be warranted in future studies.

Keywords: female new graduates, highly educated graduates, career-track positions

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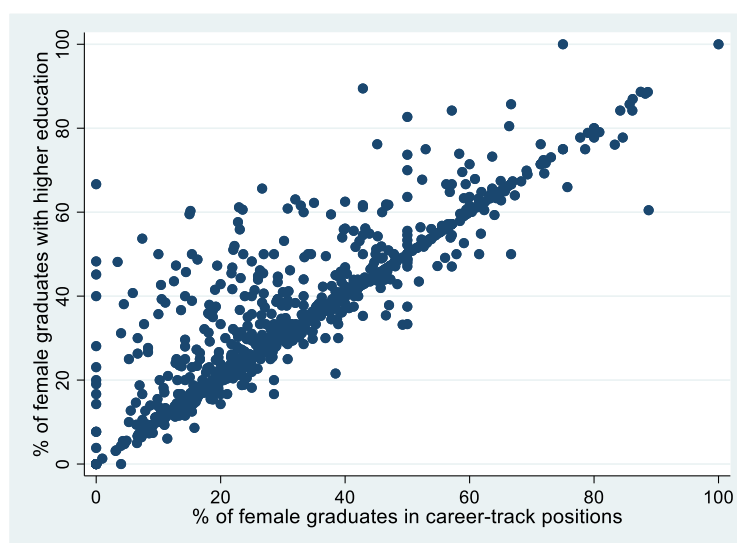
Introduction

In Japan, the promotion of active social participation of female workers has been on the rise, and a growing body of empirical studies from the perspective of economics, management, sociology, and others has been steadily accumulating. Some of these studies have examined the recruitment and retention rate of new graduates while focusing on gender differences (Fujimoto 2005, Urasaka and Okusa 1996, Yamamoto 2014, Yasuda and Araki 2014, Yoneda 2015, Yoshida 2020). Unlike other developed countries, most Japanese companies employ a unique hiring system in which a single batch of new graduates, who left universities in March, are hired in a single sweep in April. In addition, this collective recruitment is usually divided into two courses in corporations: general and career-track employment.

The main purpose of this study is to find the attributes of corporations that prevent hiring of highly educated female new graduates, who hold bachelor's or master's degrees. The notable contributions of this study are the following. First, in addition to the basic attributes of corporations, the analysis includes variables not addressed in previous Japanese studies, such as variables related to human resource policies, the status of diversity-related initiatives, corporate performance, and research and development (R&D) expenditures. Second, the factors affecting the proportion of hiring of female new graduates exclusively to career-track positions are also investigated.

Materials and Methods

Data used in the analysis are a matched dataset of the Quarterly Employment Report General Edition, Quarterly Employment Report Women's Edition, CSR Company Overview (Employment and Human Resources Utilization Edition), and Company Quarterly Report (Capital Expenditure and R&D Expenditure) published by Toyo Keizai Incorporation. The information concerning the variables is mainly obtained from the data for 2019. The dependent variables are the hiring rate (%) of highly educated female new graduates with an undergraduate or master's degree and the proportion of hiring of female new graduates for career-track positions. These figures are calculated for those who graduated in March 2020 and were collectively hired by the corporations in April 2020. The method used for the analysis is ordinary least squares. The explanatory variables are divided into the following four factors: (1) basic attributes such as the percentages of female employees and of executives in the corporation (Model 1); (2) variables related to internal human resource policies, such as whether the company has introduced performance-based management (Model 2); (3) variables indicating human resource diversity, such as the percentage of corporations hiring foreign employees (Model 3); and (4) variables related to corporate performance, such as ordinary profit and capital investment costs per employee (Model 4).



Correlation coefficient = 0.886.

Figure 1. Relationship between the Proportion of Female Graduates (%) with Undergraduate or Advanced Degrees and Their Employment in Career-Track Positions

The average hiring percentage of highly educated female graduates among all educated graduates is 33.347% whereas that of female graduates among graduates in career-track positions is 30.506%. The relationship between these two dependent variables is plotted in Fig. I. Although the correlation coefficient of 0.886 is considered a very strong correlation, the percentage of highly educated female graduates is even slightly higher than the percentage of female graduates in career-track positions. This suggests that the percentage of those who do not choose career-track employment is higher among female than among male graduates.

Results

We present our estimation results in Tables I–IV. The explanatory variables for all the estimations include the percentage of all recruits with an undergraduate degree or higher who majored in the field of humanities, the percentage of female employees, and the percentage of the average tenure years of female employees relative to the average tenure years of male employees. This is because these variables can be considered important factors affecting the percentage of female hires. The dependent variables are analyzed separately in two categories:

- (1) the percentage of female graduates with bachelor's or master's degrees, and
- (2) the percentage of female graduates employed in career-track positions.

1) Model 1: Basic Attributes of Corporations

Table I shows the results of the analysis using the basic attributes of the company as explanatory variables. In estimation (1), the percentages of new graduates who majored in the field of humanities and of female employees are positive and significant at $p < 0.01$, suggesting that corporations with many female employees also have a high percentage of female graduates. In addition, the existence of labor unions significantly increases the hiring percentage of highly educated female graduates by 3.567%, indicating that labor unions favor hiring of such females.

However, the percentage of tenure years for female employees is negative and significant at $p < 0.01$, confirming that the corporations having existing female employees with longer tenure years tend to curb hiring of female new graduates. This suggests that personnel quantitative adjustments may have taken place within the same gender group. In addition, the percentage of overseas workers is negative and significant, confirming the tendency of corporations that have expanded to overseas to employ more male graduates.

In estimation (2), the percentage of female managers is positive and significant. This suggests that corporations with more female managers are also more proactive in hiring female graduates for career-track positions, who are expected to assume future managerial positions. The effect of labor unions is greater when exclusively focusing on career-track positions, significantly increasing the percentage of female graduates by 5.607%. In contrast, the percentage of overseas employees is more negatively related with the percentage of female in career-track positions. Corporations with more employees overseas are likely to recruit male graduates more

actively for their career-track positions. Furthermore, this may also be the effect of more male students applying to these corporations.

Table 1. Effects of Basic Attributes of a Company

Variables	(1)Highly educated	(2)Career-track
% of highly educated graduates with a humanity degree	0.146 (0.033) ***	0.088 (0.041) **
% of female employees	0.432 (0.106) ***	0.211 (0.129)
% of female tenure years to male tenure years	-0.217 (0.048) ***	-0.196 (0.052) ***
% of female in manegerial positions	0.230 (0.155)	0.643 (0.174) ***
% of married female employees	0.015 (0.081)	0.034 (0.081)
Labor union	3.567 (1.649) **	5.607 (1.851) ***
Starting salary	0.649 (0.465)	0.071 (0.488)
Average overtime hours per month	-0.179 (0.076) **	-0.171 (0.090) *
Average paid leave days per year	0.347 (0.226)	0.390 (0.244)
% of females taking child-care leave	0.264 (0.201)	0.158 (0.212)
% of males taking child-care leave	0.558 (0.563)	-0.166 (0.737)
% of employees working overseas	-0.652 (0.139) ***	-0.811 (0.133) ***
Intercept	12.354 (12.220)	24.330 (13.632) *
R-squared	0.477	0.360
Number of observations	417	417

Note: ***p < 0.01, **p < 0.05, *p < 0.1. Robust standard errors in parentheses.

2) Model 2: Corporate Human Resource Policies

Table II shows the results of the analysis using in-company systems such as personnel policies as explanatory variables. It is evident that these measures do not significantly affect the percentage of female hires in both analyses. A hypothesis that the creation of a comfortable working environment increases the proportion of hiring in female workers is plausible, but this is not supported by our estimation.

3) Model 3: Human Resource Diversity

Next, Table III shows the results of the analysis using the variables related to human resource diversity as explanatory variables. The hiring percentage of employees with disabilities has a positive and significant effect

in estimation (1). However, in estimation (2), having a basic lesbian, gay, bisexual, and transgender (LGBT) policy is positively significant at $p < 0.1$. Although there is no strong correlation, this suggests that corporations that value diversity are more proactive in hiring female graduates. The fact that the percentage of foreigners is not significant is consistent with the results of Model 1, which shows that corporations expanding their operations overseas are more likely to hire male graduates.

Table 2. Effects of Corporate Personnel Policies

Variables	(1) Highly educated	(2) Career-track
Performance-based pay system	-3.773 (4.653)	-4.047 (4.529)
Allowance attached to a post	-0.640 (1.183)	-0.335 (1.337)
Human resource development system using employee input	0.748 (1.313)	2.059 (1.739)
Flextime system	2.674 (1.591)	1.765 (1.941)
Teleworking system	2.376 (1.646)	2.778 (2.003)
Allowed to supplement income with a side job	0.662 (1.247)	1.745 (1.410)
Re-employment system	1.669 (1.568)	2.240 (1.779)
Intercept	16.528 (5.980) ***	17.484 (6.545) ***
R-squared	0.520	0.343
Number of observations	348	348

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Robust standard errors in parentheses.

Table 3. Effects of Diversity

Variables	(1) Highly educated	(2) Career-track
% of foreign employees	-0.138 (0.094)	-0.138 (0.087)
% of employees with disability	2.182 (0.531) ***	0.450 (1.145)
Presence of department for diversity management	2.073 (1.332)	1.919 (1.575)
Basic policy regarding LGBT	0.854 (1.316)	2.938 (1.516) *
Intercept	16.233 (3.505) ***	21.794 (4.235) ***
R-squared	0.481	0.257
Number of observations	314	314

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Robust standard errors in parentheses.

4) Model 4: Corporate Performance

Finally, Table IV shows an analysis using the figures related to corporate performance as explanatory variables. Consolidated ordinary profit per employee and the two other variables are not significant in both estimations. For corporate performance, a simple regression analysis is significant at $p < 0.01$, but multiple regression analysis is unable to yield significant results due to the correlation between explanatory variables such as the number of female employees and capital investment, among others.

Table 4. Effects of Corporate Performance

Variables	(1) Highly educated	(2) Career-track
Consolidated ordinary profit per employee	-0.110 (0.161)	-0.269 (0.192)
Consolidated capital investment per employee	0.127 (0.170)	0.222 (0.184)
Consolidated research and development cost	1.219 (0.759)	1.221 (0.840)
Intercept	18.044 (3.472) ***	19.202 (3.710) ***
R-squared	0.499	0.345
Number of observations	310	310

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Robust standard errors in parentheses.

Conclusions

This paper examines the relationship between the hiring percentage of highly educated female graduates and attributes of corporations in Japan. Remarkably, we identified the two important factors as a hindrance to hiring new female graduates in Japanese corporations: (1) the tenure years of existing female employees and (2) the percentage of employees working overseas. Although the promotion of female employees is on the rise, these findings indicate that the positions of female employees are still limited within gender-specific jobs or positions that do not require a business trip or relocation. A closer focus on these issues should be warranted in future studies.

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